

**CLAIMS**

We claim:

1. A diffusion cell comprising a receptor and donor compartment, wherein the receptor compartment is a single-chambered compartment that incorporates a sampling arm and a bubble trap.
2. A diffusion cell comprising a receptor and donor compartment, wherein the receptor compartment is a single-chambered compartment that includes a first outlet and a second outlet, a diffusion membrane and the donor compartment are positioned over the first outlet, and the second outlet forms a bubble trap and a sampling arm.
3. The diffusion cell of claim 2, wherein the first outlet is formed on a side of the receptor compartment and the second outlet is formed at a top surface of the receptor compartment.
4. The diffusion cell of claim 2, wherein a top surface of the receptor compartment inclines upward toward the second opening.
5. The diffusion cell of claim 2, wherein a bottom surface of the diffusion membrane forms at least a portion of the top surface of the receptor compartment and the first outlet of the receptor chamber is formed such that the portion of the top surface of the receptor compartment formed by the bottom surface of the diffusion membrane inclines upward toward the second outlet.
6. The diffusion cell of claim 5, wherein the first outlet and the second outlet are formed at the top surface of the receptor compartment and a bubble channel extends between the first and second outlet.

7. The diffusion cell of claim 2, wherein the receptor compartment includes a top surface, the first outlet and the second outlet are formed in the top surface, and a bubble channel extends between the first and second outlet.
8. The diffusion cell of claim 1 or 2, wherein the diffusion cell is formed of a top section and a bottom section and the top and bottom sections are separable.
9. The diffusion cell of claim 8, wherein the top section of the diffusion cell comprises the first outlet of the receptor compartment.
10. The diffusion cell of claim 9, wherein the top section of the diffusion cell comprises the first outlet and the second outlet of the receptor compartment.